Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

LEAN VALUE CHAIN SUCCESS RELIEVES CRITICAL PART SHORTAGE

At Oklahoma City Air Logistics Center (OC-ALC), the number of rotor overhauls the center could accomplish in a month increased from 84 per month to 156 per month, while the average critical part resolution time decreased from 143 days to 61 days. At the Corpus Christi Army Depot (CCAD), helicopter engine overhauls increased from 10 per month up to 40 per month, while the engine cycle time through the shop decreased from an average of 326 days to just 176 days.

Management can now immediately identify inventory shortages with greater flexibility in scheduling subsystem overhauls. Lean Value Chain (LVC) improves visibility of aircraft status and forecasting capability, and better information allows for more effective management decisions. LVC also produced significant reductions in the number of critical parts, time wasted searching for parts, part inventories, and holding costs.

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Accomplishment

The Manufacturing Technology (ManTech) Division, of the Materials and Manufacturing Directorate, in cooperation with KBSI, Inc., of College Station, Texas, developed an LVC program that has dramatically decreased critical part shortages for Air Force and Army depots. LVC's goal to reduce critical part resolution time by 50% was exceeded, improving the mission readiness of Air Force aircraft that use General Electric (GE) F100 series engines and the Army's Blackhawk helicopters by returning them to service from routine depot maintenance faster than before.

Increasing the mission readiness of weapon systems needed by the warfighter is the greatest payoff from the LVC program, but it is not the only one. In addition to the rate increase in rotor and helicopter engine overhauls, a significant cost savings was achieved. At OC-ALC, a 52% reduction in the number of rotor repair kits on-hand (from 436 to 208) resulted in an approximate $25 million one-time savings plus $4.5 million per year in recurring savings.

Background

Management procedures for the repair parts' inventory proved inefficient at the OC-ALC and the Army's CCAD for helicopters. Critical part resolution time in the OC-ALC GE rotor repair shop had increased to an average of more than 140 days. A critical part is any component, when unavailable, that stops the repair of a major weapon system subassembly, keeping that system out of action. Parts were critical for reasons like sole-source contract negotiation delays, delayed deliveries from the Defense Logistics Agency, and increased part condemnation rates due to age.

These issues meant the depots were unable to anticipate and identify critical parts in advance; determine the best course for timely, cost-effective critical part resolution; and monitor and accelerate the critical part resolution process. In response to this situation, ManTech funded the LVC for Critical Part Procurement project and received support from OC-ALC and CCAD. The implementation of lean principles, re-engineered processes, and advanced technologies through largely computer-based resolution strategies proved to be the solution, since they provided a more efficient method of running the depot operation.

Materials and Manufacturing
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-ML-31)